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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/588,449	08/03/2006	Henrik Lundquist	10581.204-US	2788

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NOVOZYMES NORTH AMERICA, INC.
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EXAMINER

BADR, HAMID R

ART UNIT	PAPER NUMBER
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1781

NOTIFICATION DATE	DELIVERY MODE
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09/13/2011

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

Patents-US-NY@novozymes.com

Office Action Summary	Application No. 10/588,449	Applicant(s) LUNDQUIST ET AL.	
	Examiner HAMID R. BADR	Art Unit 1781	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 August 2011.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on ____; the restriction requirement and election have been incorporated into this action.
- 4) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 5) ☒ Claim(s) 1-5, 9 and 16 is/are pending in the application.
- 5a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 6) ☐ Claim(s) ____ is/are allowed.
- 7) ☒ Claim(s) 1-5, 9 and 16 is/are rejected.
- 8) ☐ Claim(s) ____ is/are objected to.
- 9) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 10) ☐ The specification is objected to by the Examiner.
- 11) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 12) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Applicants' amendment filed 8/02/2011 is acknowledged.

Claims 1-5, 9, and 16 are being considered on the merits.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-5, 9 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dutron et al. (WO/2004/023879, of record; hereinafter R1) in view of JP 2001-245665 (Polypeptide ID AAM51802; hereinafter R2)

3. R1 discloses the incorporation of xylanases into the dough to improve the baking properties of the baked product (Abstract).

4. R1 discloses that one of the preferred xylanases is the xylanase of *Bacillus halodurans* C-125 or those obtained from the corresponding gene expressed in a suitable host [0024, and Example 2].

5. R1 discloses that the bread improving composition comprising at least one enzyme of their invention is added during the mixing of the dough. [0025]

6. R1 discloses that other bread improving agents, including enzymes, can be added to the dough [0026]. R1 teaches that among other enzymes, maltogenic amylase can be used with xylanase [0027]. R1 gives the details of cloning the enzyme [0046].

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7. R1 discloses that the application of xylanase in baking improves or increases texture, flavor, anti-staling effects, softens crumb, dough machinability and volume of the finished product. [0054].
8. R1 teaches of using the xylanase in the form of dry powder, granulate, liquid etc.
9. While R1 discloses the use of *B. halodurans* C-125 in dough and baking processes, R1 is silent regarding the SEQ. ID. of the *B. halodurans* c-125 xylanase.
10. R2 discloses the results of a comparison of amino acids (1-182) of SEQ. ID NO.2; as presently claimed, with other sources of xylanases. R2 clearly discloses that the claimed SEQ. ID NO.2 matches the *B. halodurans* C-125 at 100%.
11. The inclusion of xylanase, from *B. halodurans*, into dough to improve its properties or the properties of the baked product is disclosed by R1. R1 further teaches of including further enzymes including the maltogenic amylase into the dough formulation. R1 discloses the various forms and compositions containing the xylanase and additive enzymes. R2 discloses that the *B. halodurans* C-125 xylanase is identical to the claimed SEQ. ID. NO. 2. Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to add xylanase of *B. halodurans* having the SEQ. ID. No. 2, to dough and bakery products to improve their properties. Absent any evidence to contrary and based on the teachings of the reference used, there would be a reasonable expectation of success to make xylanase and use in dough formulations.

Response to Arguments

Applicants' arguments have been considered. These arguments are not deemed persuasive for the following reasons.

1. Applicants argue that the Examiner has provided no articulated reasoning with some rational understanding as to why it would have been obvious to one of ordinary skill in the art to do so with the particular xylanase.

a. The primary reference is a clear evidence that combination of xylanase and maltogenic amylase was known in the art at the time the invention was made. This combination is presently claimed. Further, the xylanase disclosed by R1 is a xylanase of *Bacillus halodurans* C-125. All the advantages of using this xylanase in baked products are acknowledged by R1, and in fact, this xylanase is the preferred xylanase of R1. Since R1 does not give the SEQ. ID. of that xylanase, R2 comes into picture to show that the SEQ. ID. No. 2, as presently claimed, is in fact the xylanase of *Bacillus halodurans* as disclosed by R2. For the sake of argument, even if we assume that the xylanase of R1 is not the xylanase of R2, the xylanase of R1 is an endo-1,4-beta xylanase and the characteristics of baked product containing it are summarized in paragraph 7 under obviousness rejections. The xylanase disclosed by R2, having 100% identity with SEQ. ID. No. 2, as presently claimed, would have been expected to produce similar results regarding texture, loaf volume, color, flavor, crumb moistness etc. of the baked product as disclosed by R1.

2. Applicants argue that the xylanase identified in R1 has low sequence identity of only about 8% to the Applicants' claims.

a. The search of the sequence identity did not produce any results as to the identity of the amino acid sequence of the xylanase of R1. However, R1 clearly discloses that the xylanase is that of *Bacillus halodurans* C-125. On the other hand, the rejection is an obviousness type rejection. The rejection is clearly indicating that incorporation of xylanase would be expected to bring about the textural and storage characteristics of the baked product as outlined by R1 specifically when combined with a maltogenic amylase as disclosed by R1.

3. Applicants argue that the specification as filed demonstrates the positive effects of adding a xylanase according to the invention.

a. The positive effects of adding a xylanase to the dough and the resulting baked products are clearly disclosed by R1. Please see paragraph 7 above.

4. Applicants argue that the xylanase of the invention has a significant effect on firmness in combination with Novamyl being an exemplary maltogenic amylase.

a. The combination of xylanase and maltogenic amylase is clearly disclosed by R1. Therefore, all the characteristics of the baked product would be expected to be similar.

5. Applicants argue that the xylanase, according to the invention, is able to improve moistness.

a. The improvement in moistness is anticipated by R1. R1 clearly discloses the anti-staling effects, and crumb softness in baked products comprising xylanase. The improvement in moistness, as presently argued, is an equivalent term with improving anti-staling effect and crumb softness; because both of these characteristics are

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brought about by improving the moisture retention in the baked product. Therefore, contrary to Applicants' belief, these results are disclosed in R1 and that is why such results are expected in products comprising xylanase.

A prima facie case of obviousness is established where the Examiner demonstrates that the invention is nothing more than the predictable result of a combination of familiar elements according to known methods. *KSR Int'l. Co. v. Teleflex Inc.*, 550 U.S. 398, 416 (2007); *Rolls-Royce, PLC v. United Technologies Corp.*, 603 F.3d 1325, 1338, (Fed. Cir. 2010) ("If a person of ordinary skill, before the time of invention and without knowledge of that invention, would have found the invention merely an easily predictable and achievable variation or combination of the prior art, then the invention likely would have been obvious.").

Conclusion

12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HAMID R. BADR whose telephone number is (571)270-3455. The examiner can normally be reached on M-F, 8:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Donald Tarazano can be reached on (571) 272-1515. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/D. Lawrence Tarazano/
Supervisory Patent Examiner, Art Unit 1781

HAMID R BADR
Examiner
Art Unit 1781